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First record of *Leptomeliola uvariae* for South America

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Abstract — During a mycological expedition to the 'Reserva Ecológica de Saltinho', Municipality of Tamandaré, Pernambuco State, Brazil, the ascomycete *Leptomeliola uvariae* was found on leaves of the fern *Lygodium volubile*, parasitizing the mycelium of a meliolaceous fungus. This is the first report of *Leptomeliola uvariae* from South America.

Key words — *Ascomycota*, epiphytic fungi, hyperparasite, Atlantic Forest

Introduction

Höhnel (1919) described the genus *Leptomeliola* Höhn. (*Ascomycota, Parodiopsidaceae*) as a hyperparasite of meliolaceous fungi. Of the 14 names published in *Leptomeliola* cited by Index Fungorum (2010), five are muscicolous species (Racovitza 1959) that should probably be excluded from the genus, while three others should be placed in synonymy (Hughes 1993). The six accepted species are *L. cryptocarpa* [= *L. anomala*], *L. cymbisperma* [= *L. hyalospora*, the type species], *L. puberula*, *L. quercina*, *L. torta* [= *L. javensis*], and *L. uvariae*. Only two species have previously been recorded from Brazil: *L. cryptocarpa* (in São Paulo, Amazonas and Rio Grande do Sul States) and *L. puberula* (in Pernambuco State) (Batista 1951, Hughes 1993).

Species of the family *Meliolaceae* are biotrophic parasites, which are usually foliicolous and occur worldwide on phanerogam and pteridophyte hosts. These fungi are frequently parasitized by anamorphs and other *Ascomycota* (Hansford 1946, 1961, Hughes 1993).

Below we describe and illustrate *L. uvariae* and report its first occurrence in South America.

Materials & methods

The collection site lies in the 'Reserva Biológica de Saltinho' (8°43′55″S 35°10′26″W), situated by PE-60 near Tamandaré Municipality, South Coast of Pernambuco State. The 548-hectare Atlantic Rain Forest reserve has a 12–36°C temperature range and annual rainfall up to 3000 mm (MUSEU DO UNA 2008).

During February 2010, living leaves of *Lygodium volubile* with black mildew symptoms were collected. The leaves were taken to the laboratory of the 'Departamento de Micologia da Universidade Federal de Pernambuco' and examined under the stereomicroscope. Fruiting bodies were manually scraped, cut, and mounted in PVLG + cotton blue. Slides were examined under a light microscope Leica DM50 equipped with a digital camera and fungal structures of taxonomic value were studied. Species were identified by comparing descriptions of similar ascomycetes parasitizing *Meliolaceae* (Hansford 1946, Müller & Arx 1962, Arx & Müller 1975, Hughes 1993).

In order to isolate *Spiropes capensis*, conidia were cultured on potato-dextrose-agar medium (PDA) amended with chloramphenicol 250 μg.ml^{-1} for seven days under ambient laboratory conditions (28 ± 2°C, 12 h light and 12 h darkness).

Taxonomy

Leptomeliola uvariae (Rehm) S. Hughes, Mycological Papers 166: 203 (1993).

Figs 1–8

Specimen examined: **BRAZIL. Pernambuco: Tamandaré Municipality,** on *Meliolaceae* undetermined, on living leaves of *Lygodium volubile* Sw. (*Schizaeaceae*), 08 February 2010, Michelline L. Silvério (URM 82258).

Colonies amphigenous, superficial, composed by subhyaline to pale brown hyphae, 2.7–4 μm thick. Pseudothecia isolated, brown, globose to subglobose, 190–270 × 170–250 μm, ostiolate, setose; setae simple, straight, cylindrical, obtuse apex, septate, dark brown, 107.5–212.5 × 7.5–8.75 μm; peridium 40–45 μm thick, composed by many layers of thick-walled angular cells. Asci bitunicate, short-stipitate, clavate, 8-spored, 92.5–115 × 35–45 μm; paraphyses absent. Ascospores clavate, hyaline becoming brown, smooth, 33–40 × 11–14 μm, 3-septate, strongly constricted at the middle septum, two superior cells broader.

Geographical distribution: Philippines, Uganda, Ghana, Sierra Leone, Congo(-Kinshasa), Puerto Rico, Brazil.

Notes: In the same material, conidiophores of *Spiropes capensis* (Thüm) M.B. Ellis seemingly developing from the mycelium of *L. uvariae* were observed; these were solitary or aggregated, cylindrical, septate, brown to dark brown, becoming paler at the tip, straight or flexuous, 175–347.5 × 6.25–8.75 μm, with conidial scars; conidia straight, fusiform, mucronate, olivaceous light brown to brown, smooth, straight, with 3 to 5 transverse pseudosepta, formed sympodially on the conidiophore apex, 38–54 μm long, 7–12 μm wide in the broadest region, 2–4.5 μm at the apex and 3–6 μm at the base (Figs 9–13).

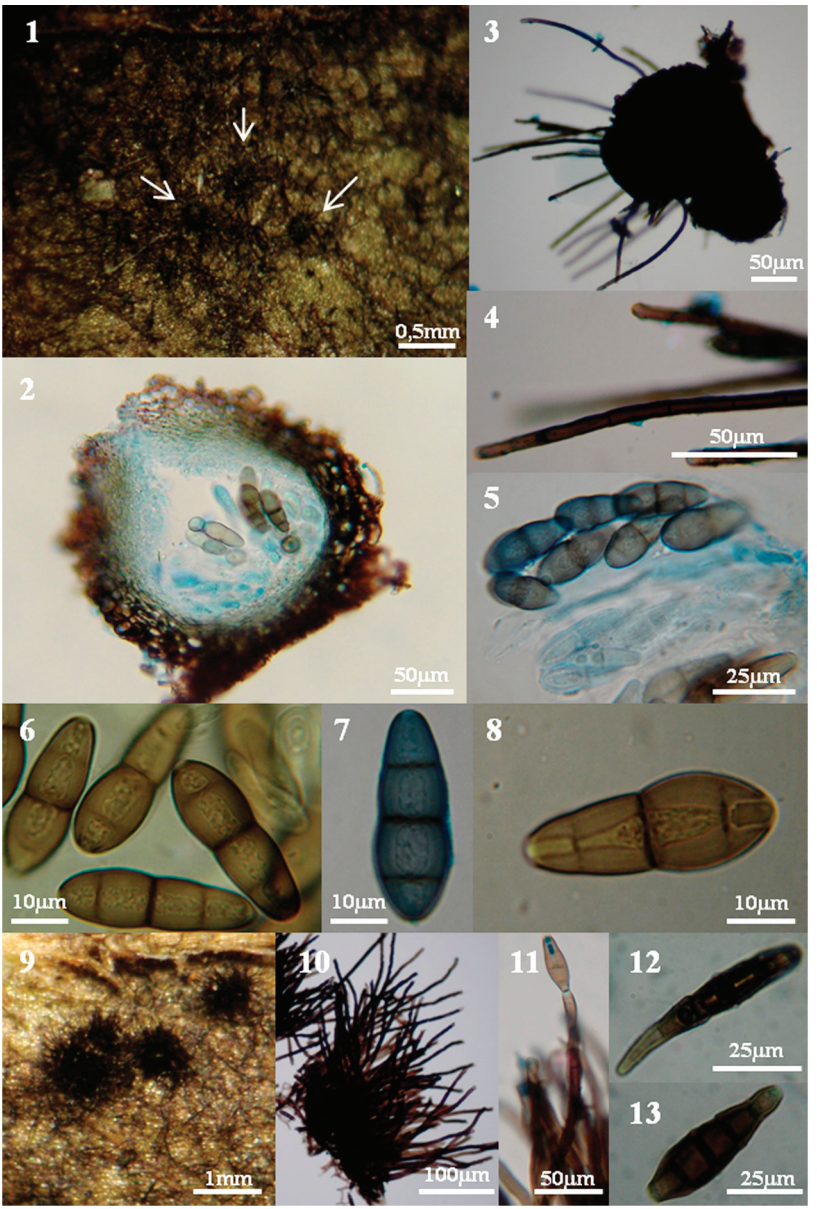

Fig. 1–8: *Leptomeliola uvariae*— 1. Pseudothecia in colonies on leaves of *Lygodium volubile*; 2. Vertical section of pseudothecium; 3. Setose pseudothecium; 4. Setae; 5. Asci and ascospores; 6–8. Ascospores. Fig. 9–13: *Spiropes capensis*— 9. Conidiophores on the leaf surface; 10–11. Conidiophores and young conidium; 12–13. Mature conidia.

Table 1. Characteristics of known species of *Leptomeliola*.

Species	Pseudothecia (µm diam.)	Asci (µm)	Ascospores (µm)	Hosts	References*
L. cryptocarpa (Ellis & G. Martin) S. Hughes = *L. anomala*	150–350: globose to flattened, hairy	80–100 × 25–35, clavate to saccate	30–50 × 10–12, 3–5septate, clavate	*Meliola* sp.; *Irene* sp.	Hughes (1993); Hansford (1946, as *Ph. meliolicola*)
L. cymbisperma (Mont.) S. Hughes = *L. hyalospora*	Minute: spherical, +/-setose (as *L. hyalospora*)	Clavate-pyriform (as *L. hyalospora*)	27–36 × 8.5–10, 3septate, ellipsoid	*Asteridiella* sp.	Hughes (1993); Höhnel (1919)
L. puberula Bat.	150–212.5: globose, setose	47.5–57.5 × 20–25, clavate	25–32.5 × 5–7.5, multiseptate, fusoid	Not available	Batista (1951)
L. quercina (Pat.) Höhn.	Not available	Not available	36–43 × 9–12 , 4–5septate, ellipsoid to clavate	Unknown sp. (*Meliolaceae*)	Hughes (1993)
L. torta (Doidge) S. Hughes = *L. javensis*	180–260: spherical, almost smooth (as *L. javensis*)	80 × 20–24, clavate (as *L. javensis*)	27–29 × 9–11, 3-septate, ellipsoid to clavate	*Meliola torta* Doidge; *Irene scabra* (Doidge) Doidge	Hughes (1993); Höhnel (1919)
L. uvariae	≤ 280: globose to subglobose, setose	100 × 20–30, ellipsoid to saccate	32–44 × 7–14, 3-septate, clavate-oblong	Unknown sp. (*Meliolaceae*)	Hughes (1993); Hansford (1946, as *Ph. meliolicola*)

**Ph. = Phaeophragmeriella*

The presence of pseudothecia and conidiophores apparently on the same mycelium was also observed by Hansford (1946: 96, as *Phaeophragmeriella meliolae* and *Helminthosporium capense*) and Hughes (1993: 204); however, molecular and cultural confirmation is needed before this observation can be accepted as indicating a teleomorph/anamorph connection. Attempts to isolate the *Spiropes* conidia on culture media have been unsuccessful.

Leptomeliola uvariae can be easily distinguished from the other species of the genus based on morphological differences, such as pseudothecial size and shape; presence or absence of setae on the pseudothecia; size and shape of asci; septation, shape and size of the ascospores (Table 1).

The collection substrate, *Lygodium volubile*, is a member of a pteridophyte genus that has a pantropical distribution (Tryon & Tryon 1982, Barros et al. 2010).

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